

obtained a Cronbach's α value of 0.62 which is comparable to other versions. The Reactivity scale also had 3 items but its Cronbach's α value was only 0.25. **CONCLUSIONS:** Childhood Asthma Questionnaire (CAQ-C) is a simple and acceptable HRQoL instrument for asthmatic teenagers. Most found the questionnaire easy and fast to complete. The adapted version has Distress, Severity, Teenage and Active Quality of Living scales with good internal consistency. However, further investigations are needed to determine the internal structure of the scales by factor analysis and improve the Reactivity scale reliability.

PRP26**REVIEW OF QUALITY OF LIFE INSTRUMENTS IN PEDIATRIC ASTHMA**

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OBJECTIVES: Health status is an important outcome measure in assessing treatment of asthmatic children. However, measuring quality of life in asthmatic children is difficult, requiring measures that are both sensitive to asthma and appropriate for children. This review summarizes and evaluates published quality of life instruments for pediatric asthma. **METHODS:** Articles were obtained by searching the Medline up to date. The following fields were extracted from articles for each instrument and summarized in a table: applicable age group, type of respondent, means of administration, items and domains, scaling, item selection, psychometric properties and versions in foreign languages. Standard psychometric measures including internal consistency and test-retest reliability, validity and responsiveness were chosen as evaluation criteria. Alpha 0.7–0.9 was chosen as acceptable range for reliability. **RESULTS:** 10 asthma- and children-specific instruments were identified (ASDQ, AMA, CAQ, CHSA, FSI, HAY, ITG-CASF, LAQCA, AAQOL, PAQLQ), in addition to three generic instruments applied in pediatric asthma. These instruments vary widely in age groups, length, items and domains, means of administration, psychometric measures, and versions and languages. The number of items ranges from 6–71, and number of domains 1–7. All instruments contain physical symptoms or activities domains. All measured internal consistency; only CAQ had domains with alpha lower than the minimum requirement. ASDQ, AMA, FSI and ITG-CASF had no test-retest reliability reported, and HAY and CHSA had domains with low reproducibility with alpha less than 0.7. Only HAY and PAQLQ demonstrated good responsiveness by showing changes in scores associated with clinical change. PAQLQ is the only instrument satisfying all selected criteria. **CONCLUSIONS:** Responsiveness to change is critical in quality of life outcomes studies, yet many instruments did not report this measure and therefore need further validation. Among 10 selected instruments, only PAQLQ satisfied the selected criteria and is recommended to use for ages 7–17.

WOMEN'S & MEN'S HEALTH—Clinical Outcomes/Healthcare Policy**PWM1****META-ANALYSIS OF THE EFFECTIVENESS OF MAMMOGRAPHY**

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The efficacy of mammographic screening in the reduction of breast cancer (BC) mortality is controversial. **OBJECTIVE:** To compare the results obtained by using only “unbiased” trials in a meta-analysis, to what is obtained when considering also all the trials that were previously excluded, and to conduct a meta-analysis of the efficacy of mammographic screening, including data from all sources (8 trials) and adjusting for qualitative bias. **METHODS:** Fixed effects (FE) and random effects (RE) inverse-variance weighted techniques were used to obtain the pooled relative risk (RR) of death from BC in screened groups vs. control groups. The pooled RR was also estimated for all-cause mortality. Heterogeneity testing was done for every set of studies pooled. Sensitivity analysis to model choice and to inclusion criteria was carried out. 2. Quality measures were assigned to each trial, to account for biases in design, intervention, patient follow-up, outcome measurement and statistical analysis. Quality-weighted RE analysis combined all 8 trials to estimate the RR of BC mortality in screened groups vs. control groups, in women of all ages. The analysis was repeated in two age subgroups: women under 50, and over 50. Cumulative and sensitivity analyses tested the inclusion criteria and the quality weighting method. **RESULTS:** Pooling all the trials for women at any age showed screening to cause a significant 20% reduction in BC mortality, with a RE RR of 0.796(95% CI = 0.69–0.91). All-cause mortality was not significant [RR = 0.99(95% CI = 0.94–1.04)]. Sensitivity analysis did not change the estimates much. Quality-weighted analysis resulted in RR of 0.84(95% CI = 0.73–0.96), 0.89(95% CI = 0.74–1.09) and 0.81(95% CI = 0.71–0.92) in women of all ages, under 50 and over 50, respectively. **CONCLUSIONS:** Mammography reduced breast cancer mortality rates among women 40–74 years of age, with greater risk reduction observed among older women. The efficacy of mammographic screening in the 40–49 age group remains in question.

PWM2**A MULTIDIMENSIONAL ANALYSIS OF DELIVERY-CARE**

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OBJECTIVES: To evaluate effectiveness, costs and customers' satisfaction of delivery care in the Obstetrics Division of the Hospital of Novara (Italy). **METHODS:** We

evaluate the impact of a new procedure to manage the “birth path” technology (“... women should be encouraged to deliver in the position they find more comfortable”). We compared the traditional deliver-care path (consisting in making women deliver in lithotomic position) with a new one re-engineered according to the recommendations of the Cochrane Library, to let women choose the deliver position. We evaluated three aspects of healthcare quality: maternal and foetal clinical outcomes (with logistic regression models), the costs of the new healthcare process (with Activity Based Costing) and customer satisfaction (with a satisfaction survey). **RESULTS:** The study involved 430 women, without documented risk factors for complicated pregnancy or delivery. Outcome analysis: the probability that the delivery has a perineal wound as outcome almost doubles if the patient does not choose the labour position (OR = 2.396, CI 95% = 1.523–3.771); besides, a higher risk to develop a large wound is associated to a foetal weight >3000g at expulsion (OR = 1.859, CI 95% = 1.135–3.047), together with the first vaginal delivery (OR = 3.295, CI 95% = 1.982–5.478) and when the woman is more than 30 years old (OR = 1.944, CI 95% = 1.257–3.007 ($p < 0.01$)). Economic evaluation: the costs for patient for free position deliveries were slightly higher (range US\$679.00 to US\$1893.00) than those for the traditional process (ranged US\$623.00–US\$1737.00). Customer satisfaction: overall satisfaction proved to be independent from the presence of any complications, the humanisation level of the structure, or the type of support, but it was influenced by the possibility to choose the labour position and by the woman’s expectations ($p < 0.01$). **CONCLUSIONS:** Our findings led to the decision to change the traditional process with the new one, the latter having similar costs and better outcomes. Nevertheless, this evaluation process was complex.

PWM3

COMPARISON OF DIRECT-TO-CONSUMER INTERVENTIONS BY A MEDICAID HEALTH PLAN TO INCREASE FOLIC ACID SUPPLEMENTATION IN WOMEN OF CHILDBEARING AGE

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OBJECTIVES: Studies show that periconceptional folic acid supplementation can prevent some neural tube defects, the most common birth defects contributing to infant mortality and severe disability. Despite widespread campaigns to promote folic acid supplementation for women of childbearing age, a recent national Gallup survey found only 29% of women reported taking a multivitamin containing folic acid. The rate of supplementation is even lower among women with lower incomes and

education. The objective of this pilot study is to determine the effectiveness of direct-to-consumer strategies targeted to increase folic acid use among women of childbearing age in a Medicaid managed care plan. **METHODS:** A total of 2400 English-speaking women (18–45 years old) enrolled in CareOregon were randomly selected to receive one of 3 interventions: 1) folic acid educational material plus a sample of multivitamins containing folic acid and a voucher to redeem by mail for multivitamins; 2) educational material plus a voucher to redeem by mail for multivitamins containing folic acid; and 3) educational material only. Vitamins were sent free of charge to subjects through a mail-order pharmacy. Pre- and 3 month post-intervention surveys were used to assess subjects’ folic acid use and knowledge. Prescription claims for multivitamins and folic acid were evaluated before and after intervention. **RESULTS:** The combined pre- and post-intervention survey response rate for the 3 groups was 16.1%, 13.2%, and 11.9%, respectively. The reported mean folic acid supplement use for the 3 groups before intervention was 43%, 46%, and 37%, respectively, and 59%, 62%, and 37%, respectively, after intervention. Folic acid supplement use increased significantly ($p < 0.01$) for the voucher and vitamin groups, but not for the educational material only group. **CONCLUSIONS:** Providing easier access to multivitamins through direct marketing significantly increases folic acid supplement use after three months in women in a Medicaid population.

PWM4

EVALUATION OF A PHARMACEUTICAL PATIENT ASSISTANCE PROGRAM: THE NORPLANT REMOVAL PROGRAM

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OBJECTIVE: A patient assistance program (PAP) provided women with the option to have their levonorgestrel implants (Norplant System) removed at no cost, but the PAP only received half of patient-requested removal certificates (vouchers) for reimbursement. The primary goal of this study was to examine the reasons for apparent underutilization of the certificates and to identify treatment barriers. **METHODS:** The study population in this cross-sectional study was made up of women with the levonorgestrel implant who requested removal certificates from the Norplant Foundation during a seven-month period, but did not return completed certificates via their physicians. A total of 1820 women qualified for the removal program during the 6-month data collection period. Seventy-five percent of these women agreed to participate in the study. A 3 page self-report questionnaire and a return envelope were mailed to each participant, with a single follow-up sent to non-responders within two weeks of the initial mailing. The survey covered the patient’s current removal status and possible reasons for non-removal. **RESULTS:** Thirty-nine percent of the ques-